

*Des Cartes* principles, by conceiving the Globuls of the third Element to find less and less resistance against that side of them which is downwards, or by a way, which I have further explicated in the Inquisition about Colours, to be from an obliquation of the pulse of light, whence the ruder part is continually promoted, and consequently refracted towards the perpendicular, which cuts the Orbs at right angles. What the particular Figure of the *Curve line*, describ'd by this way of light, is, I shall not now stand to examine, especially since there may be so many sorts of it as there may be varieties of the Positions of the *intermediat* degrees of *density* and *rarity* between the bottom and the top of the inflecting Medium.

I could produce many more Examples and Experiments, to illustrate and prove this first Proposition, *viz.* that there is such a constitution of some bodies as will cause inflection. As not to mention those I have observ'd in *Horn*, *Tortoise-shell*, *transparent Gums*, and *resinous Substances*: The *veins* of *Glass*, nay, of melted *Crystal*, found, and much complained of by *Glass-grinders*, and others, might sufficiently demonstrate the truth of it to any diligent Observer.

But that, I presume, I have by this Example given proof sufficient (*viz. ocular demonstration*) to evince, that there is such a modulation, or bending of the rayes of light, as I have call'd *inflection*, differing both from *reflection*, and *refraction* (since they are both made in the superficies, this only in the middle); and likewise, that this is able or sufficient to produce the effects I have ascribed to it.

It remains therefore to shew, that there is such a property in the Air, and that it is sufficient to produce all the above mentioned *Phænomena*, and therefore may be the principal, if not the only cause of them.

First, That there is such a property, may be proved from this, that the parts of the Air are some of them more condens'd, others more rarified, either by the differing heat, or differing pressure it sustains, or by the somewhat heterogeneous vapours interspers'd through it. For as the Air is more or less rarified, so does it more or less refract a ray of light (that comes out of a denser medium) from the perpendicular. This you may find true, if you make tryal of this Experiment.

Take a small *Glass-bubble*, made in the form of that in the second Figure of the 37. *Scheme*, and by heating the *Glass* very hot, and thereby very much rarifying the included Air, or, which is better, by rarifying a small quantity of water, included in it, into vapours, which will expel the most part, if not all the Air, and then sealing up the small neck of it, and letting it cool, you may find, if you place it in a convenient Instrument, that there will be a manifest difference, as to the refraction.

As if in this second Figure you suppose A to represent a small sight or hole, through which the eye looks upon an object, as C, through the *Glass-bubble* B, and the second sight L; all which remain exactly fixt in their several places, the object C being so sized and placed, that it may just seem to touch the upper and under edge of the hole L: and so all of it be seen through the small *Glass-ball* of rarified Air; then by breaking